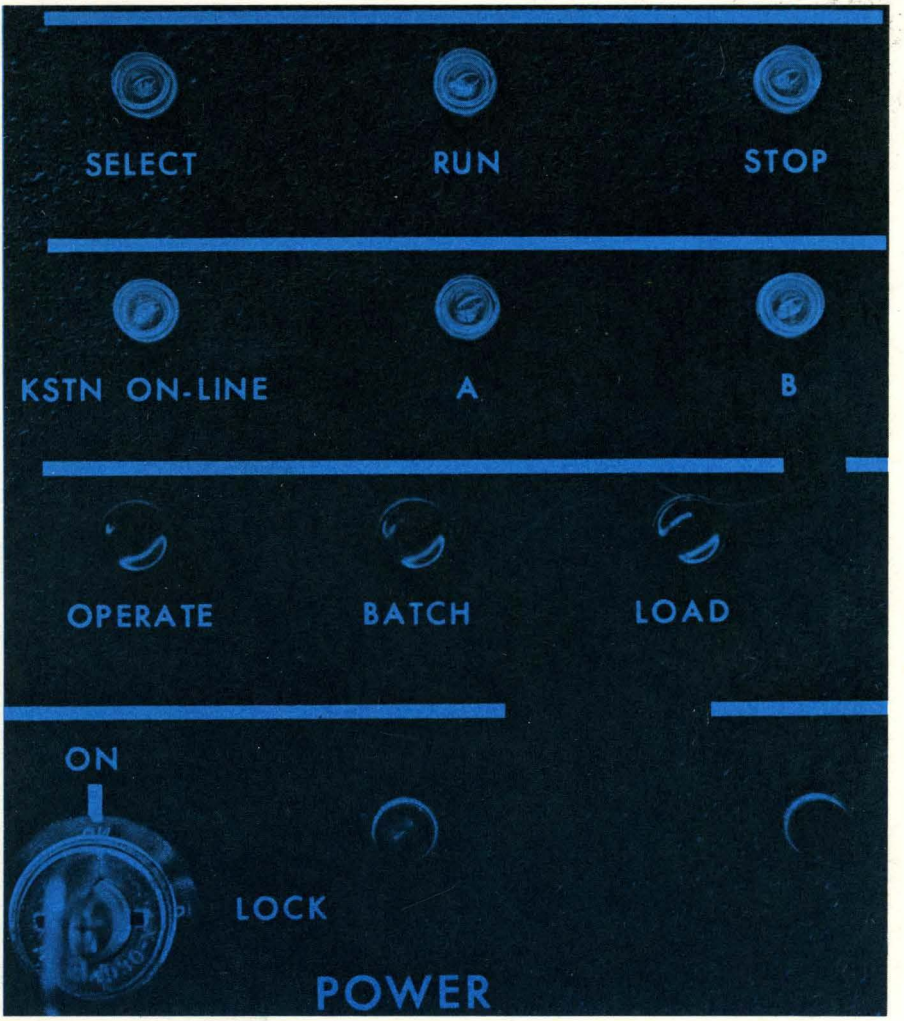
CMC

COMPUTER MACHINERY CORPORATION

CMC 7 and CMC 9
KeyProcessing™ Systems

Supervisor's Guide



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Supervisor's Guide

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CMC 7 and CMC 9
KeyProcessing™ Systems

Supervisor's Guide

April 1972

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SELECT
RUN
STOP
START
OPERATE
BATCH
LOAD
STEP
POWER
ALARM
SUPERVISORY
CONSOLE

FOREWORD

The CMC 7 and CMC 9 KeyProcessing™ System Supervisor's Guide is designed for supervisory personnel. Instructions are presented in outline form and require a prior knowledge of system operation and KeyProcessing System report generation.

The five sections of this guide parallel supervisory responsibilities including overall system supervision, report generation, data recording operations, Record Format Library control, and error recovery.

Section 1, SYSTEM OPERATION, contains instructions for setting the operational status of the system, maintaining the equipment, and initiating supervisory procedures and reports.

Section 2, SUPERVISORY PROCEDURES AND REPORTS, defines and lists E Series Operate System procedures and reports. Instructions provide an instant reference to the system/supervisor dialogue that determines data arrangement and report structure. Standard opening procedures are separated from selective options by dashed lines. The variable "n" is defined as an applicable number supplied by the supervisor and typed on the system teleprinter.

Section 3, TAPE CODE MATRICES, lists the tape codes available for batch transfer and tape entry operations.

Section 4, RECORD FORMAT ENTRY VIA Keystation™, contains instructions for entering, modifying, and deleting record formats via the Keystation.

Section 5, PROBLEM RECOGNITION AND RECOVERY, contains recovery procedures for equipment malfunction and disk full conditions and defines system error messages.

Changes introduced by future operate systems will be documented and prepared for insertion into this guide.

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1. SYSTEM OPERATION

SYSTEM ON

Model C Disk Unit

1. Turn supervisory console POWER key to ON.
2. Depress disk unit POWER ON button.
3. Wait for disk unit green indicator to go on.
4. Depress supervisory console START button. System is ready when supervisory console SELECT light goes on.

Model M Disk Unit

1. Set disk unit READ WRITE/READ ONLY switch at READ WRITE. Set disk unit ENABLE/DISABLE switch at ENABLE.
2. Turn supervisory console POWER key to ON.
3. Set disk unit STOP/START switch at START.
4. Wait for disk unit green indicator to go on.
5. Depress supervisory console START button. System is ready when supervisory console SELECT light goes on.

SYSTEM OFF

Model C Disk Unit

1. Depress supervisory console STOP button.
2. Depress disk unit POWER ON button.
3. Wait for disk to stop spinning.
4. Turn supervisory console POWER key to OFF.

Model M Disk Unit

1. Depress supervisory console STOP button.
2. Set disk unit STOP/START switch at STOP.
3. Wait for disk to stop spinning.
4. Turn supervisory console POWER key to OFF.

Keystations ON LINE

1. Start the system.

2. Depress supervisory console OPERATE button.

3. Teleprinter prints

   CMC-9 (xxxxx) INITIALIZE

   or

   CMC-7 (xxxxx) INITIALIZE

   xxxxx = program revision level

If the system is equipped with Feature No. 117:

4. Teleprinter prints

   400n ACTIVE
   OA BATCH?

   (or, prints only the OA BATCH message if no operator analyses batch is active.)

5. Type one option:

   400m. (Close batch 400n and open batch 400m. Batch numbers must be within range 4001 through 4010.)

   . (Allow original OA batch 400n to remain active.)

If the system is equipped with Feature No. 150:

6. Teleprinter prints

   TDS?

7. Type one option

   13:45 12/31/72-1. (Example of time, date, and shift)

   13:45 12/31/72-. (Example of time and date only)

8. Teleprinter prints

   KEYSTATIONS ON LINE

Keystations OFF LINE

1. With the system on and the Keystations on line, depress the supervisory console STOP button. Teleprinter prints SYSTEM STOPPED message.

2. Depress the supervisory console START button.

LOADING CMC SYSTEM TAPE

1. Read carefully and follow any special instructions received with the tape.

2. Make certain that there is no write ring on the tape reel and that the tape unit is off line.

3. Pull out the tape unit drawer far enough to allow the dust cover to swing up. Open the cover.

4. Load the reel by positioning it over the rear retainer hub (see supply reel in Figure 1), then depress the center plunger to allow the reel to slip over the rubber ring on the reel retainer. Press the reel evenly and firmly against the back of the retainer hub while the center plunger is depressed. While holding the reel in this position, release the center plunger.

5. Thread the tape through the tape unit as shown in Figure 1. Swing the flux gate down and to the right to thread the tape past the tape head.

6. Wrap the tape leader on the take-up reel so that the tape will be wound on the reel when the reel turns clockwise. Wind several turns on the take-up reel, then rotate the rear (supply) reel until slack tape has been taken up.

7. Close the tape unit dust cover.

8. Depress the tape unit LOAD button.

9. Depress LOAD again; the tape moves forward to the load point and the LOAD indicator goes on.

10. Depress the ON LINE button.

11. Depress the supervisory console START button.

12. When the SELECT light goes on, depress the console LOAD button; the teleprinter prints FEATURE SELECT.

13. Type period-only to load the standard operate system with no additional features. Always use this procedure unless otherwise advised by the CMC representative.

14. The tape automatically rewinds when finished. Take off the tape and continue normal operating procedure.

LOADING TAPES FOR INPUT

1. Make certain that there is no write ring on the tape reel and that the tape unit is off line.

2. Pull out the tape unit drawer far enough to allow the dust cover to swing up. Open the cover.

3. Load the reel by positioning it over the rear retainer hub (see supply reel in Figure 1), then depress the center plunger to allow the reel to slip over the rubber ring on the reel retainer. Press the reel evenly and firmly against the back of the retainer hub while the center plunger is depressed. While holding the reel in this position, release the center plunger.

4. Thread the tape through the tape unit as shown in Figure 1. Swing the flux gate down and to the right to thread the tape past the tape head.

5. Wrap the tape leader on the take-up reel so that the tape will be wound on the reel when the reel turns clockwise. Wind several turns on the take-up reel, then rotate the rear (supply) reel until slack tape has been taken up.

6. Close the tape unit dust cover.

7. Depress the tape unit LOAD button.

8. Depress LOAD again; the tape moves forward to the load point and the LOAD indicator goes on.

9. Depress the ON LINE button; the indicator goes on to indicate that the tape unit is ready.

LOADING TAPES FOR OUTPUT

1. Place the write ring on the tape reel and make certain that the tape unit is off line.

2. Pull out the tape unit drawer far enough to allow the dust cover to swing up. Open the cover.

3. Load the reel by positioning it over the rear retainer hub (see supply reel in Figure 1), then depress the center plunger to allow the reel to slip over the rubber ring on the reel retainer. Press the reel evenly and firmly against the back of the retainer hub while the center plunger is depressed. While holding the reel in this position, release the center plunger.

4. Thread the tape through the tape unit as shown in Figure 1. Swing the flux gate down and to the right to thread the tape past the tape head.

5. Wrap the tape leader on the take-up reel so that the tape will be wound on the reel when the reel turns clockwise. Wind several turns on the take-up reel, then rotate the rear (supply) reel until slack tape has been taken up.

6. Close the tape unit dust cover.

7. Depress the tape unit LOAD button; the Write Enable (WRT EN) indicator goes on.

8. Depress LOAD again; the tape moves forward to the load point and the LOAD indicator goes on.

9. Depress the ON LINE button; the ON LINE indicator goes on to indicate that the tape unit is ready.

UNLOADING TAPES

1. Depress the ON LINE button to take the tape unit off line; the ON LINE indicator goes off.

2. Momentarily depress the REWIND button to initiate a rewind action; the tape stops at load point. Depress REWIND again; the tape continues to rewind until tape tension is lost.

3. Open the tape unit dust cover.

4. Depress the reel retainer hub plunger and remove the supply reel.

5. If a write ring is present, remove it from the reel.

6. Close the dust cover.

7. Label the reel of tape with appropriate markings.

CLEANING THE MAGNETIC TAPE UNIT

The tape head and capstan of the magnetic tape unit (see Figure 1) should be cleaned daily with a cotton swab moistened in isopropyl alcohol. Wipe carefully with a small amount of this solvent to remove all accumulated oxide and dirt.

CAUTION

To avoid serious damage to the equipment:

Do not clean the tape cleaner (see Figure 1).

Do not use rough or abrasive cloths.

Do not use an excessive amount of solvent.

Do not use carbon tetrachloride or any solvent other than isopropyl alcohol.

Clean the external surfaces of the magnetic tape unit weekly with a household spray-type cleaner.

PRINTER ON

1. Load paper if required. Check to see that a sufficient supply is available.

2. At multisystem installations, turn the System Select switch (left-hand side of printer) to connect the printer to the desired KeyProcessing System.

3. Open the front door of the printer and set the POWER switch on the maintenance panel to ON.

4. Check the maintenance panel and make certain that the PRINT INHIBIT switch and all lights are off.

5. Close the drum gate.

6. Wait for the READY indicator (control panel on top of printer) to go on; the indicator goes on approximately 15 seconds after power is turned on.

7. Push the ON LINE/OFF LINE switch toward ON LINE; the ON LINE indicator goes on and the printer is ready for operation with the system.

PRINTER OFF

1. Push the ON LINE/OFF LINE switch toward OFF LINE.

2. Open the front door of the printer and set the POWER switch on the maintenance panel to OFF.

STANDARD SELECT PROCEDURE

To start a supervisory procedure or report, follow the Standard Select procedure and then type the appropriate call character. There are two versions of the Standard Select procedure. Use one when the Keystations are on line and the other when the Keystations are off line.

With Keystations ON LINE ⬇	With Keystations OFF LINE ⬇
• Check to see that the console KSTN ON-LINE light is on and that light A is off. (If light A is on, depress console button 2 or hold teleprinter CTRL key and strike the D key.)	• Check to see that the console STOP light is on. (If the STOP light is off, depress console STOP button.)
• Depress console button 1 or Strike teleprinter ALT MODE key. —Teleprinter prints: SELECT:	• Depress console START button. —STOP light goes off —SELECT light goes on • Depress console button 1. —SELECT light goes off —RUN light goes on —Light A goes on —Teleprinter prints: SELECT:
• Type desired Select call character.	• Type desired Select call character.

STANDARD STOP PROCEDURE

To stop a supervisory procedure or report, follow the Standard Stop procedure. There are two versions of the Standard Stop procedure. Use one when the Keystations are on line and the other when the Keystations are off line. Instructions are not included for those reports and procedures that terminate automatically.

With Keystations ON LINE	With Keystations OFF LINE
During procedure • Depress console button 2 or Hold teleprinter CTRL key and strike the D key. • Console light A goes off and procedure in process is interrupted.	During procedure • Depress console STOP button or Depress console button 2 or Hold teleprinter CTRL key and strike the D key. • Console RUN light goes off and procedure in process is interrupted. Teleprinter prints SYSTEM STOPPED. STOP light goes on.
Completion of procedure • Type a period (.). • Console light A goes off and procedure is complete.	Completion of procedure • Type a period (.). • Console RUN light goes off. Procedure is complete. Teleprinter prints SYSTEM STOPPED. STOP light goes on.

CORRECTING TELEPRINTER TYPING ERRORS

Error correction procedures vary, depending on when the error is detected. Use the following instructions for correcting teleprinter typing errors.

Before a terminating period	After a terminating period
• Type a left arrow (hold down SHIFT key and strike O key). • Teleprinter carriage returns. • Retype line in which error occurred.	• Depress supervisory console button 2 or hold down teleprinter CTRL key and strike D key. • Restart procedure.

SELECTRAINER

The name of the procedure or report for a specific Select character can be determined as follows:

1.	Follow Standard Select procedure.	
2.	Teleprinter prints	SELECT:
3.	Type	d? (Select character)
4.	Teleprinter prints	Procedure or report title SELECT:
5.	Type a Select character.	
6.	Type one option	? (request another title) (initiate the procedure or report)

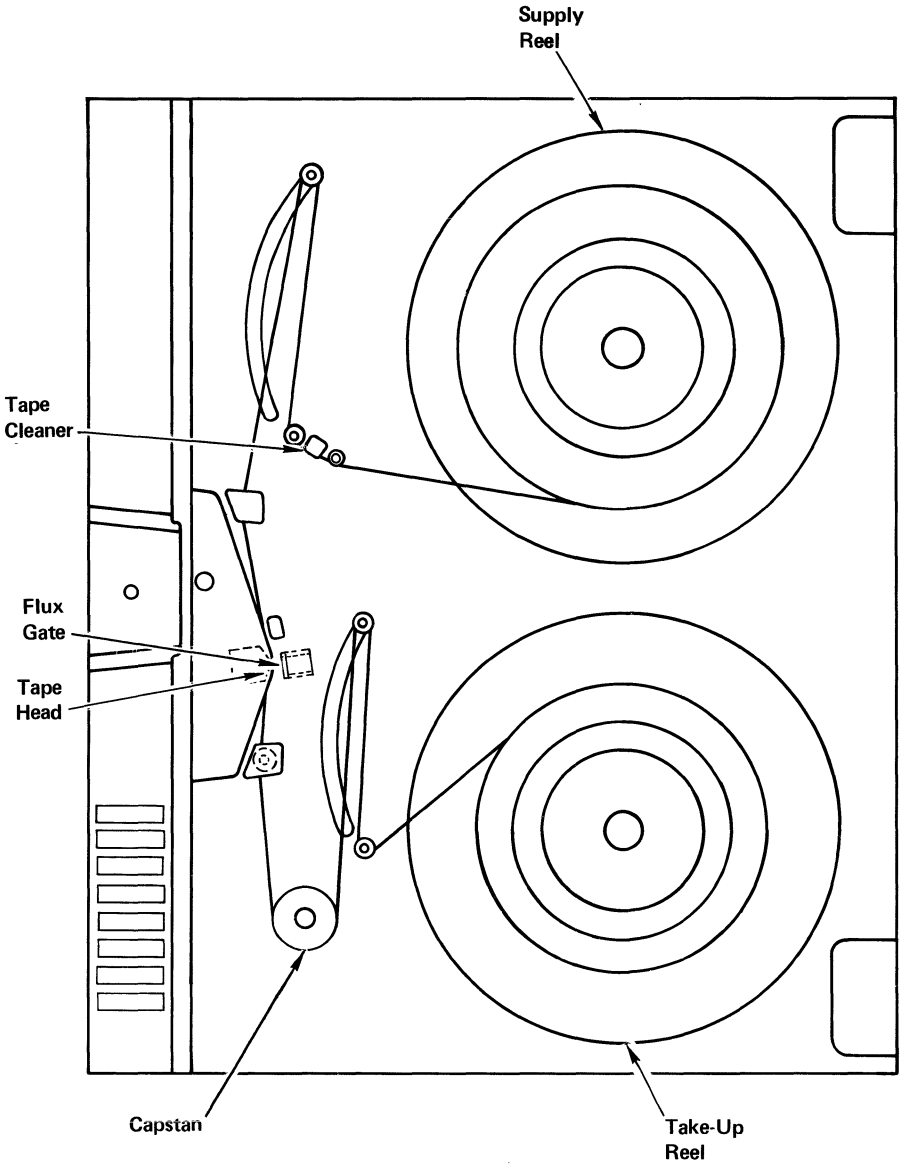


Figure 1. Magnetic Tape Unit, Showing Tape Path and Controls

2. SUPERVISORY PROCEDURES AND REPORTS

SELECT Character*	Procedure or Report Name	Function Letter	Function Name
A.	Batch Transfer		
B.	Batch Transfer and Batch Performance Report		
C.	Shift Activity Report	P.	Print Statistics
		C.	Clear Statistics
D.	System Status Report		
E.	Batch Release		
F.	Batch Cancel		
G.	Data Clear		
L.	Batch Status Report		
M.	Batch Maintenance	F.	Batch Format Alter
		L.	Batch Lock
		U.	Batch Unlock
N.	Multiple Format Maintenance		
P.	Batch List		
Q.	Tape Entry	P.	Print Tape Data
		T.	Tape Positioning
		W.	Write Tape Data On Disk
R.	System Reload		
S.	System Save		
T.	Reformat Maintenance		
U.	Record Format Maintenance	A.	Lock All Formats
		B.	Unlock All Formats
		C.	Lock Format Library
		D.	Unlock Format Library
		E.	Lock Temporary Formats
		F.	Unlock Temporary Formats
		G.	Single Format Cancel
		H.	Format List
		I.	Format Enter

*When the printer is operating, a slash (/) between the select character and the period directs report output only to the printer.

SELECT Character*	Procedure or Report Name	Function Letter	Function Name
U. (cont.d)	Record Format Maintenance (cont.d)	J.	Record Format Save
		K.	Record Format Load
		L.	Format Map
		M.	Validation Maintenance
V.	Data Validation		
Y.	Batch Name Maintenance	A.	Name Status
		B.	Name Entry
		C.	Name Cancel
Z.	Event Log		
!.	Maintenance Report	A.	Counts
		B.	Feature Selects
%.	Octal-Hex Tape Dump		
1.	Record Ident (ARII)		
$.	System Recover	A.	Batch Recover
		B.	TAL Integrity
		C.	Operations Log
=.	OAMT Preprocessor		

*When the printer is operating, a slash (/) between the select character and the period directs report output only to the printer.

BATCH TRANSFER (A and B)

Transfer completed batches from disk storage to tape.

1. Follow Loading Tapes for Output procedure.	
2. Follow Standard Select procedure.	
3. Teleprinter prints	SELECT:
4. Type one option	A. (Batch Transfer) B. (Batch Transfer with Batch Performance Report)
5. Teleprinter prints	Selected report title

If the system is equipped with two tape units:

6. Teleprinter prints	TAPE UNIT: 1. OR 2.
7. Type one option	1. (tape unit 1) 2. (tape unit 2)

If the selected tape is 7-track:

8. Teleprinter prints	DENSITY: L. OR .
9. Type one option	L. (low density) . (high density)
10. Teleprinter prints	FORMAT:
11. Type	Format Select character (see Tape Code Matrices)
12. Teleprinter prints	Tape code name selected in step 11.
13. Teleprinter prints	BLOCKING: . OR #.
14. Type one option	. (one record per block) n. (number of records per block)
15. Teleprinter prints	REFORMAT: #. OR .
16. Type one option	n. (RFS number for reformatting) A. (ARII only) nA. (RFS number and ARII) . (no reformatting or ARII)

17. Teleprinter prints

BATCH #.

18. Type one or a series of options. Type a comma after each option except the last. After the last option, type a period. (A maximum of 20 options is allowed.)

n or nd (single batch to be transferred)
n-n or (range of batches to be
n-nd transferred)

or

name/. (all batches with the batch name)
name/n. (single batch name batch)
name/
n-n. (range of batch name batches)
name/d. (selective batch name batches)

d can be one or more of the following:

U = unverified batch(es)
T = previously transferred batch(es)
B = batch(es) with out-of-balance fields

nS (number of blocks to be skipped to bypass prerecorded labels)

nP, (label batch number for positioning data tape to end of a data file. Used for trailer label that has had block count inserted.)

nS,nP, (number of blocks to be skipped to bypass prerecorded labels and label batch number for positioning data tape to end of a data file. Used for trailer label that has not had block count inserted.)

nE (number of tape marks to be written)

nL (batch number of label batch to be written)

n-nL (range of label batch numbers)

Tape Labeling

19.	Teleprinter prints	LABEL:	(enters label batch number specified)
20.	Teleprinter prints	FIELD:	#. OR .
21.	Type one option		(this record of label batch already contains proper data--skip to step 27)
		n,n.	(numbers of fields into which data is to be entered) A maximum of 8 fields can be specified.
22.	Teleprinter prints	REC FLD ENTRY	
23.	Teleprinter prints	Record number followed by field number specified in step 21.	
24.	Type	Variable data followed by a reverse slash \ (hold SHIFT key and depress L key).	

Return to step 23 until all variable data has been entered.

25.	Teleprinter prints	FIELD:	#. OR .
26.	Type one option		(terminate entry in this label record)
		n.	(another field number--return to step 23)

When period-only is entered, record is written to tape.

27.	Teleprinter prints	REC n WRITTEN	(label batch record number)

Tape Labeling procedure continues the FIELD: #. OR . request until all header label records have been processed. Batch Output Log is then printed, followed by a return to step 19 to process trailer labels, if any.

BATCH TRANSFER (A and B)--continued

28.	After Batch Output Log printout, teleprinter prints	BATCH #.	
29.	Type one option	n.	(select another transfer option--return to step 18)
			(no more batches to be transferred)

When period-only is entered:

30.	Teleprinter prints	BLOCKS IN FILE = (total printed) EOFS: #. OR .	
31.	Type one option	0. . n.	(no tape marks) (one tape mark) (number of tape marks)
32.	Teleprinter prints	REWIND: R. OR .	
33.	Type one option	R.	(rewind tape and terminate Batch Transfer procedure)
			(continue Batch Transfer--return to step 13)

EOF Label Update with Automatic Block Count Insertion

- During initial batch transfer, prepare for EOF update by substituting T for L in step 18.
- Perform batch transfer again and transfer a phantom batch (a disk-resident batch that has already been transferred). Beginning of batch string in step 18 is

nS,nP,phantom batch number,

BATCH TRANSFER--OPERATOR ANALYSES BATCHES (A)

Transfer Operator Analyses batches from disk storage to 9-track tape.

NOTE: Perform the OAMT Preprocessor procedure (SELECT: =.) on all Operator Analyses batches before transferring the batches to tape.

1.	Follow Loading Tapes for Output procedure.		
2.	Follow Standard Select procedure.		
3.	Teleprinter prints	SELECT:	
4.	Type	A.	
5.	Teleprinter prints	BATCH TRANSFER	
6.	Continue with the Batch Transfer (A,B) procedure explained on the preceding pages until the following:		
7.	Teleprinter prints	BATCH #.	
8.	Type one or a series of options followed by a period.	n or nT	(single OA batch to be transferred)
		n-n or n-nT	(range of OA batches to be transferred) NOTE: The n above must be in the range 4001-4010.
		nS nP, nS,nP, nE	Refer to step 18 in Batch Transfer (A,B) for a description of these options.

NOTE: Check the Batch Output Log for the status of any nontransferred OA batches. Status code U means that transfer was refused because the batch has not been preprocessed Do not attempt to override this interlock. Instead, terminate Batch Transfer and process the batch with the OAMT Preprocessor. After preprocessing is complete, restart Batch Transfer and write the batch on tape.

Exception: At installations with EDP equipment programmed to accept unprocessed (packed) CMC tapes, use override letter U to force the transfer of nonpreprocessed OA batches.

9. Complete the procedure as described on preceding pages for Batch Transfer (A,B).

SHIFT ACTIVITY REPORT (C)

Print operator statistics for a summary of work accomplished during a reporting period or clear operator statistics to prepare for a new reporting period.

1. End keying of data on all Keystations.
2. Follow Standard Select procedure with Keystations off line.
3. Teleprinter prints — SELECT:
4. Type — C.
5. Teleprinter prints — SHIFT ACTIVITY
6. Teleprinter prints — FUNCTION:
7. Type one option
   - P. (print)
   - C. (clear)
   - . (terminate report)

P. (print)		C. (clear)	
Teleprinter prints	PRINT STATISTICS OPR #:	Teleprinter prints	CLEAR STATISTICS OPR #:
Type one option	n. (one operator) n-n. (range) A. (all operators)	Type one option	n. (one operator) n-n. (range) A. (all operators)
Teleprinter prints	OPR #:	Teleprinter prints	OPR #:
Type one option	n. (another number) n-n. (another range) . (terminate Print function)	Type one option	n. (another number) n-n. (another range) . (terminate Clear function)
Print function continues until a period is typed. This returns the program to step 6.		Clear function continues until a period is typed. This returns the program to step 6.	

. (terminate report)

Teleprinter prints SYSTEM STOPPED

D

SYSTEM STATUS REPORT (D)

Print a record of Keystation and disk activity.

1. Follow Standard Select procedure.

2. Teleprinter prints — SELECT:

3. Type — D.

4. Teleprinter prints — SYSTEM STATUS

   DATA STORAGE USED = (percentage printed)
   TRACKS AVAIL = (number of tracks available printed)

5. System lists status of each active Keystation.

6. Procedure terminates automatically upon completion of the report.

BATCH RELEASE (E)

Release a batch number for reuse after a batch has been transferred to tape.

1.	Follow Standard Select procedure.	
2.	Teleprinter prints	SELECT:
3.	Type	E.
4.	Teleprinter prints	BATCH RELEASE BATCH #:
5.	Type one option	n. (batch to be released) n-n. (range of batches to be released) . (terminate procedure)

n. (release one batch)	n-n. (release range of batches)
Teleprinter prints released batch number followed by the letter R. Teleprinter then prints:	Teleprinter prints each released batch number followed by the letter R. Teleprinter then prints:
BATCH #:	BATCH #:
Type one option: Another number; Another range; . (terminate)	Type one option: Another number; Another range; (terminate)
Release function continues until a period is typed.	Release function continues until a period is typed.

BATCH CANCEL (F)

Cancel any batch in the system.

1. Follow Standard Select procedure.	
2. Teleprinter prints	SELECT:
3. Type	F.
4. Teleprinter prints	BATCH CANCEL BATCH #. OR .
5. Type one option	n. (batch to be cancelled) . (terminate procedure)

When n. option is entered:

6. Teleprinter prints	Cancelled batch number followed by the letter C. BATCH #. OR.
7. Type one option	n. (another number) . (terminate)

DATA CLEAR (G)

Clear all open or closed batches of data stored on disk.

1. End keying of data on all Keystations.
2. Follow Standard Select procedure with Keystations off line.
3. Teleprinter prints — SELECT:
4. Type — G.
5. Teleprinter prints — DATA CLEAR
   TYPE CLEAR. TO ERASE ALL DATA FROM DISK, OR.
6. Type one option — CLEAR. (clear data)
   (terminate procedure without clearing data)

CLEAR. (clear data)	. (terminate procedure)
Teleprinter prints COMPLETE SYSTEM STOPPED	Teleprinter prints SYSTEM STOPPED

BATCH STATUS REPORT (L)

Print the status of any single batch or range of batches, or selectively list only those batches having the following characteristics: written batches, verified batches, open batches, batches previously transferred to tape, batches written under control of an MFG, batch numbers not currently in use, and out-of-balance batches.

1. Follow Standard Select procedure.

2. Teleprinter prints — SELECT:

3. Type — L.

4. Teleprinter prints — BATCH STATUS
BATCH #:

5. Type one option

n.	(one batch)
n-n.	(complete report for range of batches)
n-nd.	(selective report for range of batches)
or	
name/.	(complete report for all batches with the batch name)
name/ n-n.	(complete report for all batches in the batch range)
name/d.	(selective report for batch name batches)
name/ n-nd.	(selective report for batch name batches in the batch range)

d can be one of the following:

A = available unused batch numbers
B = out-of-balance batches
M = MFG batches
O = open batches
T = transferred batches
V = verified batches
W = written batches

(terminate Batch Status Report)

6. After printout, Teleprinter prints — BATCH #.

7. Type another option.

BATCH MAINTENANCE (M)

Control the security status of a batch or modify the format of an existing batch that has been closed for Write or Verify. Batch Format Alter function cannot be used for MFG batches or Batch Name batches.

1.	Follow Standard Select procedure.		
2.	Teleprinter prints	SELECT:	
3.	Type	M.	
4.	Teleprinter prints	FUNCTION:	
5.	Type one option	F.	(Batch Format Alter function)
		L.	(Batch Lock function)
		U.	(Batch Unlock function)

Batch Format Alter Function (F)

1.	Type	F.	
2.	Teleprinter prints	BATCH ALTER BATCH #:	
3.	Type	n.	(batch for which format modification is required)
4.	Teleprinter prints	FIELD #.	
5.	Type	n.	(field to be modified)
6.	Teleprinter prints	V. OR .	
7.	Type one option	V.	(change non-Verify field to Verify)
		.	(change Verify field to non-Verify)
8.	Teleprinter prints	FIELD #.	
9.	Type one option	n.	(another field number--return to step 5)
		.	(modification complete for selected batch)
10.	Teleprinter prints	BATCH #:	
11.	Type one option	n.	(another batch number--return to setp 3)
		.	(terminate Batch Alter function)

When period-only is entered:

12.	Teleprinter prints	FUNCTION:
13.	Type one option	Another function . (terminate Batch Maintenance)

Batch Lock Function (L)

1.	Type	L.
2.	Teleprinter prints	BATCH LOCK BATCH #:
3.	Type	n. (batch to be locked)
4.	Teleprinter prints	n L BATCH #:
5.	Type one option	n. (another batch number--return to step 3) . (terminate Batch Lock function)

When period-only is entered:

6.	Teleprinter prints	FUNCTION:
7.	Type one option	Another function . (terminate Batch Maintenance)

Batch Unlock Function (U)

1.	Type	U.	
2.	Teleprinter prints	BATCH UNLOCK BATCH #:	
3.	Type	n.	(batch to be unlocked)
4.	Teleprinter prints	n U BATCH #:	
5.	Type one option	n.	(another batch number--return to step 3)
		.	(terminate Batch Unlock function)

When period-only is entered:

6.	Teleprinter prints	FUNCTION:	
7.	Type one option	Another function	
		.	(terminate Batch Maintenance)

MULTIPLE FORMAT MAINTENANCE (N)

Create, modify, and delete MFGs.

1.	Follow Standard Select procedure.	
2.	Teleprinter prints	SELECT:
3.	Type	N.
4.	Teleprinter prints	MULTIPLE FORMAT MAINTENANCE INPUT =

Begin MFG Creation or MFG Change/Delete.

MFG Creation

1.	Type	nn0. (number of MFG to be created)
2.	Teleprinter prints	First MFG slot number
3.	Type one option	n. (single-format number to become level 1) n-n. (single-format number and MFG level for automatic chaining)
4.	Teleprinter prints	Next MFG slot number
5.	Type one option	n. (single-format number for next slot) n-n. (single-format number and MFG level for automatic chaining) D. (no format for this level)

Return to step 4 until all eight levels have been specified.

6.	Teleprinter prints	INPUT =

Continue MFG Creation, begin MFG Change/Delete, or type period-only to terminate Multiple Format Maintenance procedure.

MFG Change/Delete

1.	Type	nn0. (number of MFG to be changed or deleted)
2.	Teleprinter prints	First MFG slot number
3.	Type one option	S. (level is not to be changed) n. (single-format number to become level 1) D. (no format for this level--delete)
4.	Teleprinter prints	Next MFG slot number

Return to step 3 until all eight levels of the MFG have been completed.

5.	Teleprinter prints	INPUT =

Continue MFG Change/Delete, begin MFG Creation, or type period-only to terminate Multiple Format Maintenance procedure.

P

BATCH LIST (P)

Produce a character-for-character or an edited printout of selected batches.

1.	Follow Standard Select procedure.	
2.	Teleprinter prints	SELECT:
3.	Type	P.
4.	Teleprinter prints	BATCH LIST or BATCH LIST AND PERF REPORT
5.	Teleprinter prints	EDIT:
6.	Type one option	1. (space after every 10 characters) 2. (space between each field) 3. (space after every 10 characters and replace leading zeros with spaces in left zero fields) 4. (space between each field and replace leading zeros with spaces in left zero fields) . (no additional spaces)
7.	Teleprinter prints	REFORMAT: #. OR .
8.	Type one option	n. (RFS number for reformatting) Selection voids any EDIT request in step 6. . (no reformatting)
9.	Teleprinter prints	BATCH #.
10.	Type one or a series of options. Type a comma after each option except the last. After the last option, type a period. (A maximum of 20 options is allowed.)	n or nd (single batch to be listed) n-n or n-nd (range of batches to be listed) name/or name/d (batch name batches to be listed) name/n-n or name/n-nd (range of batch name batches to be listed) d can be one or both of the following: B = batch(es) with out-of-balance fields M = MFG batch(es)

BATCH LIST (P)--continued

11. After Batch List Log printout, teleprinter prints	BATCH #.
12. Type one option	n. (select another list option--return to step 10) . (another RFS to be selected; another form of edit to be selected; or no more batches to be listed)
13. Teleprinter prints	RECS PRINTED = (total printed) CONTINUE:
14. Type one option	Y. (list more batches--return to step 6) . (terminate Batch List)

Q

TAPE ENTRY (Q)

Use an output data tape to perform one of three functions: print tape data records, position the tape to any desired location, and re-enter the data onto disk for further processing.

1. Follow Loading Tapes for Input procedure.	
2. Follow Standard Select procedure.	
3. Teleprinter prints	SELECT:
4. Type	Q.
5. Teleprinter prints	TAPE ENTRY
If the system is equipped with two tape units:	
6. Teleprinter prints	TAPE UNIT: 1. OR 2.
7. Type one option	1. (tape unit 1) 2. (tape unit 2)
If the selected tape is 7-track:	
8. Teleprinter prints	DENSITY: L. OR .
9. Type one option	L. (low density) . (high density)
10. Teleprinter prints	FORMAT:
11. Type	Format Select character (see Tape Code Matrices)
12. Teleprinter prints	BLOCKING: . OR # .
13. Type one option	. (one record per block) n. (number of records per block)
14. Teleprinter prints	FUNCTION:
15. Type one option	P. (Print function) T. (Tape Position function) W. (Write function) • (terminate Tape Entry procedure)

Print Function (P)

1. Type	P.
2. Teleprinter prints	PRINT: # . OR A. OR .
3. Type one option	n. (one or more records) A. (print all records) . (terminate Print function)
4. After printout, teleprinter prints	RECORDS PRINTED = (total printed)
5. Teleprinter prints	FUNCTION:

Select another function or type period-only to terminate Tape Entry procedure.

Tape Position Function (T)

1. Type	T.
2. Teleprinter prints	SKIP:
3. Type one option	nC. (skip forward number of records) nS. (skip forward number of blocks) nT. or nM. (skip forward number of tape marks) -nC. (skip backward number of records) -nS. (skip backward number of blocks) -nT. or -nM. (skip backward number of tape marks) R. (rewind tape to load point)
4. Teleprinter prints	FUNCTION:

Select another function or type period-only to terminate Tape Entry procedure.

Write Function (W)

1. Type	W.
2. Teleprinter prints	RECORD FORMAT:
3. Type one option	n. (record format number to be used for batch) . (same record format as used for previous batch)
4. Teleprinter prints	RECORDS PER BATCH:
5. Type one option	n. (number of records to be written in batch) . (same number of records as used for previous batch)
6. Teleprinter prints	BATCH #.
7. Type one option	n. (number of records specified in step 5 to be written under this batch number) n-n. (number of records specified in step 5 to be written under each batch in this batch number range) n-nC. (same as above but close batch being entered if tape mark is encountered and continue writing)
8. Teleprinter prints	RECORDS PER BATCH:
9. Type one option	n. (enter more batches -- return to step 5) . (no more batches to be entered)

When period-only is entered:

10. Teleprinter prints	BATCH #.
11. Type one option	Another option (return to step 7). . (no more batches)

Write Function (W)--continued

When period-only is entered:

12. Teleprinter prints	BLOCKS INPUT = (total printed) REWIND: R. OR .	
13. Type one option	R.	(rewind tape to load point and terminate Tape Entry procedure)
	.	(terminate Write function)

When period-only is entered:

14. Teleprinter prints	FUNCTION:

Select another function or type period-only to terminate Tape Entry procedure.

R

SYSTEM RELOAD (R)

Load the System Save tape back onto the disk.

1. Follow Loading Tapes for Input procedure.
2. End keying of data on all Keystations.
3. Follow Standard Select procedure with Keystations off line.
4. Teleprinter prints — SELECT:
5. Type — R.
6. Teleprinter prints — R SYSTEM RELOAD
7. Upon completion, teleprinter prints — R COMPLETE
8. Console RUN light goes off and STOP light goes on.
9. Tape automatically rewinds to load point.

> NOTE: System Reload replaces all batches currently on disk with old batches read from the System Save tape.

SYSTEM SAVE (S)

Write the entire contents of the disk to magnetic tape.

1. Follow Loading Tapes for Output procedure.
2. End keying of data on all Keystations.
3. Follow Standard Select procedure with Keystations off line.
4. Teleprinter prints — SELECT:
5. Type — S.
6. Teleprinter prints — S SYSTEM SAVE
7. Upon completion, teleprinter prints — S COMPLETE
8. Console RUN light goes off and STOP light goes on.
9. Tape automatically rewinds to load point.

T

REFORMAT MAINTENANCE (T)

Enter, change, list, and cancel reformat structures (RFS) through the teleprinter.

1. Follow Standard Select procedure.

2. Teleprinter prints — SELECT:

3. Type — T.

4. Teleprinter prints — REFORMAT MAINT
INPUT =

Begin RFS Entry, Change, List, or Cancel.

RFS Entry

1. Type one option.
   - EL. (enter and list an RFS)
   - E. (enter without listing)

2. Teleprinter prints — T1: (for EL.) or 1: (for E.)

3. Type — Field descriptions using one of the following options:
   - n. (column number to define a field containing a single data column)
   - n-n. (column number range to define a range of columns)
   - Bn. (insert a blank field by specifying number of desired space-filled columns)
   - * (asterisk preceding period in any of above options indicates next field is beginning of alternate reformat)

Repeat step 3 to enter the next field. When all desired fields have been entered:

4. Type — Period-only for last field unless 32 fields entered

5. Teleprinter prints — INPUT =

6. Type one option to record
   - RLn. (record and list RFS)
   - Rn. (record without listing)

7. Teleprinter prints — R followed by the RFS number
INPUT =

Continue with another RFS Entry, select a different option, or type period-only to terminate Reformat Maintenance procedure.

RFS Change

1. Type one option	En. (format to be changed) ELn. (format to be changed and listed)
2. Teleprinter prints	1:
3. Type	Sn. (field number to be changed)
4. Teleprinter prints	Requested field number
5. Type	Field descriptions using one of the following options: n. (column number to define a field containing a single data column) n-n. (column number range to define a range of columns) Bn. (insert a blank field by specifying number of desired space-filled columns) * (asterisk preceding the period in any of above options indicates next field is beginning of alternate reformat)

Repeat step 5 to change the next field or repeat step 3 to change any other field. When all desired fields have been changed:

6. Type	T.
7. Teleprinter prints	INPUT =
8. Type one option to record	RLn. (record and list the changed RFS) Rn. (record the changed RFS without listing)
9. Teleprinter prints	R followed by the RFS number INPUT =

Continue with another RFS Change, select a different option, or type period-only to terminate Reformat Maintenance procedure.

RFS List

1. Type one option

L.	(list an RFS that has been entered but not yet recorded)
Ln.	(list an RFS that has been recorded)
Ln-n.	(list a range of RFSs)
EL.	(enter and list an RFS)
RLn.	(record and list an RFS)
CLn.	(cancel and list an RFS)

2. After printout, teleprinter prints INPUT =

Continue with another RFS List, select a different option, or type period-only to terminate Reformat Maintenance procedure.

RFS Cancel

1. Type one option

CLn.	(cancel after listing an RFS)
Cn.	(cancel an RFS without listing)

2. Teleprinter prints INPUT =

Continue with another RFS Cancel, select a different option, or type period-only to terminate Reformat Maintenance procedure.

RECORD FORMAT MAINTENANCE (U)

Control the entry of record formats from Keystations; cancel, list, enter, save, or load record formats; print a format map; and enter, list, or change validation formats.

1. Follow Standard Select procedure.
2. Teleprinter prints SELECT:
3. Type U.
4. Teleprinter prints RECORD FRMT MAINT FUNCTION:

Begin one of the available Record Format Maintenance functions.

All Formats Locked Function (A)

1. Type A. (prevent Keystations from entering single or temporary formats)
2. Teleprinter prints ALL FORMATS LOCKED FUNCTION:
3. Type one option Another function
   . (terminate Record Format Maintenance)

All Formats Unlocked Function (B)

1. Type B. (allow Keystations to enter single or temporary formats)
2. Teleprinter prints ALL FORMATS UNLOCKED FUNCTION:
3. Type one option Another function
   . (terminate Record Format Maintenance)

RECORD FORMAT MAINTENANCE (U)--continued

Format Library Locked Function (C)

1. Type	C. (prevent Keystations from entering single formats)
2. Teleprinter prints	FORMAT LIBRARY LOCKED FUNCTION:
3. Type one option	Another function . (terminate Record Format Maintenance)

Format Library Unlocked Function (D)

1. Type	D. (allow Keystations to enter single formats)
2. Teleprinter prints	FORMAT LIBRARY UNLOCKED FUNCTION:
3. Type one option	Another function . (terminate Record Format Maintenance)

Temporary Formats Prohibited Function (E)

1. Type	E. (prevent Keystations from entering temporary formats)
2. Teleprinter prints	TEMP FORMATS PROHIBITED FUNCTION:
3. Type one option	Another function . (terminate Record Format Maintenance)

Temporary Formats Allowed Function (F)

1. Type	F. (allow Keystations to enter temporary formats)
2. Teleprinter prints	TEMP FORMATS ALLOWED FUNCTION:
3. Type one option	Another function . (terminate Record Format Maintenance)

Single Format Cancel Function (G)

1. Type	G. (clear formats stored in disk library)
2. Teleprinter prints	SINGLE FORMAT CANCEL FORMAT #. OR .
3. Type one option	nA. (cancel alternate portion of specified format) n. (cancel entire main/alternate or main-only format)
4. Teleprinter prints	nAC (number of cancelled alternate format) nC (number of cancelled main/ alternate or main-only format)
5. Type one option	Another format number (return to step 3) . (terminate function)

When period-only is entered:

6. Teleprinter prints	FUNCTION:
7. Type	Another function . (terminate Record Format Maintenance)

Format List Function (H)

1. Type	H. (list formats)
2. Teleprinter prints	FORMAT LIST INPUT =
3. Type one option	A. (all single and MFG formats) n. (one single-format) nn0. (one entire MFG) nnn. (one MFG level) n-n. (range of single or MFG formats) T. (all temporary formats) nT. (one temporary format) n-nT. (range of temporary formats) . (terminate function)
4. After printout, teleprinter prints	INPUT =
5. Type	Another option (return to step 3)

When period-only is entered:

6. Teleprinter prints	FUNCTION:
7. Type	Another function . (terminate Record Format Maintenance)

Format Enter Function (I)--Enter a Record Format

1.	Type	I.
2.	Teleprinter prints	FORMAT ENTER INPUT =
3.	Type	C. (clear teleprinter buffer)
4.	Teleprinter prints	C INPUT=
5.	Type	E.
6.	Teleprinter prints	U 1:
7.	Type	Field descriptors. Terminate each field with period or * period if last field in a main of a main/alternate format.

Repeat step 7 to enter the next field. When all desired fields have been entered:

8.	Type	Period-only for last field unless 32 fields entered.
9.	Teleprinter prints	INPUT =
10.	Type	Rn. (record format)
11.	Teleprinter prints	R followed by the format number INPUT =

Continue, select another Format Enter function option, or type period-only to terminate function.

When period-only is entered:

12.	Teleprinter prints	FUNCTION:
13.	Type	Another function . (terminate Record Format Maintenance)

Format Enter Function (I)--Change a Record Format

1. Type	I.
2. Teleprinter prints	FORMAT ENTER INPUT =
3. Type	C. (clear teleprinter buffer)
4. Teleprinter prints	C INPUT =
5. Type	Fn. (fetch format to be changed)
6. Teleprinter prints	F followed by format number INPUT =
7. Type	E.
8. Teleprinter prints	U 1:
9. Type	n. (number of field to be changed) Teleprinter positions to field.
10. Type	New field descriptors. Terminate each field with period or * period if last field in a main of a main/alternate format. Teleprinter positions to next field or field 17 if * period typed.

Return to step 9 until all desired changes have been made.

11. Type	T. (all other fields to remain unchanged)
12. Teleprinter prints	INPUT =
13. Type	Rn. (record format)
14. Teleprinter prints	R followed by the format number INPUT =

Continue, select another Format Enter function option, or type period-only to terminate function.

When period-only is entered:

15. Teleprinter prints	FUNCTION:
16. Type	Another function . (terminate Record Format Maintenance)

Format Enter Function (I)--Delete an Alternate Format

1.	Type	I.
2.	Teleprinter prints	FORMAT ENTER INPUT =
3.	Type	Fn. (fetch format requiring alternate format deletion)
4.	Teleprinter prints	F followed by format number INPUT =
5.	Type	CA. (cancel alternate format)
6.	Teleprinter prints	CA INPUT =
7.	Type	Rn. (record main-only format)
8.	Teleprinter prints	R followed by the format number INPUT =

Continue, select another Format Enter function option, or type period-only to terminate function.

When period-only is entered:

9.	Teleprinter prints	FUNCTION:
10.	Type	Another function . (terminate Record Format Maintenance)

Record Format Save Function (J)

1. Follow Loading Tapes for Output procedure.	
2. End keying of data on all Keystations.	
3. Follow Standard Select procedure with Keystations off line.	
4. Teleprinter prints	SELECT:
5. Type	U.
6. Teleprinter prints	RECORD FRMT MAINT FUNCTION:
7. Type	J.
8. Teleprinter prints	REC FORMAT SAVE TYPE SAVE. OR .
9. Type one option	SAVE . (save formats) . (terminate function without saving formats)

SAVE. (save formats)	. (terminate function)
Record formats are written on tape and the tape rewinds	Teleprinter prints FUNCTION:
Teleprinter prints COMPLETE FUNCTION:	

Select another function or type period-only to terminate Record Format Maintenance.

Record Format Load Function (K)

1.	Follow Loading Tapes for Input procedure.	
2.	End keying of data on all Keystations.	
3.	Follow Standard Select procedure with Keystations off line.	
4.	Teleprinter prints	SELECT:
5.	Type	U.
6.	Teleprinter prints	RECORD FRMT MAINT FUNCTION:
7.	Type	K.
8.	Teleprinter prints	REC FORMAT LOAD TYPE LOAD. OR .
9.	Type one option	LOAD. (load record formats) . (terminate function without loading formats)

LOAD. (load formats)	. (terminate function)
Record formats are written on disk and the tape rewinds. Teleprinter prints COMPLETE FUNCTION:	Teleprinter prints FUNCTION:

Select another function or type period-only to terminate Record Format Maintenance.

Format Map Function (L)

1. Type	L. (print matrix map of formats resident in format library)
2. Teleprinter prints	FORMAT MAP INPUT =
3. Type one option	A. (map all single and MFG formats) n. (one single-format) nn0. (one entire MFG) n-n. (range of single or MFG formats)
4. After printout, teleprinter prints	INPUT =
5. Type	Another option (return to step 3) . (terminate function)

When period-only is entered:

6. Teleprinter prints	FUNCTION:
7. Type	Another function . (terminate Record Format Maintenance)

Validation Maintenance Function (M)--Enter a Single Validation Format

1. Type	M.
2. Teleprinter prints	VALIDATION MAINT INPUT=
3. Type	E.
4. Teleprinter prints	1:
5. Type	Field descriptors for the field or type desired field number. Terminate each field with period or * period if last field in a main of a main/alternate format.

Repeat step 5 for each field to be entered. When all desired fields have been entered:

6. Type	Period-only for last field unless 32 fields entered.
7. Teleprinter prints	INPUT =
8. Type	Rn. (record validation format)
9. Teleprinter prints	The format number INPUT =

Enter, change, or list another single validation format; or type period-only to terminate function.

When period-only is entered:

10. Teleprinter prints	FUNCTION:
11. Type	Another function . (terminate Record Format Maintenance)

Validation Maintenance Function (M)--Change a Single Validation Format

1. Type	M.
2. Teleprinter prints	VALIDATION MAINT INPUT =
3. Type	Fn. (fetch format to be changed)
4. Teleprinter prints	1:
5. Type	n. (number of field to be changed) Teleprinter positions to field.
6. Type	Field descriptors. Terminate each field with a period or * period if last field in a main of a main/alternate format. Teleprinter positions to next field or field 17 if * period typed.

Return to step 5 until all desired changes have been made.

7. Type	T. (all other fields to remain unchanged)
8. Teleprinter prints	INPUT =
9. Type	Rn. (record validation format)
10. Teleprinter prints	The format number INPUT =

Enter, change, or list another single validation format; or type period-only to terminate function.

When period-only entered:

11. Teleprinter prints	FUNCTION:
12. Type	Another function . (terminate Record Format Maintenance)

Validation Maintenance Function (M)--List a Single Validation Format

1. Type	M.
2. Teleprinter prints	VALIDATION MAINT INPUT =
3. Type	Ln. (list validation format)
4. After printout, teleprinter prints	INPUT =

Enter, change, or list another single validation format; or type period-only to terminate function.

When period-only entered:

5. Teleprinter prints	FUNCTION:
6. Type	Another function . (terminate Record Format Maintenance)

Validation Maintenance Function (M)--Enter an MFG Validation Format

1. Type	M.	
2. Teleprinter prints	VALIDATION MAINT INPUT =	
3. Type	Mnn0.	(number of MFG to be entered)
4. Teleprinter prints	First MFG slot number	
5. Type	n.	(single validation format number to become level 1)
6. Teleprinter prints	Next MFG slot number	
7. Type one option	n.	(single validation format number for next slot)
	D.	(no format for this level)

Return to step 6 until all eight levels have been specified.

8. Teleprinter prints	INPUT =	

Enter another MFG validation format or type period-only to terminate function.

When period-only is entered:

9. Teleprinter prints	FUNCTION:	
10. Type	Another function	
	.	(terminate Record Format Maintenance)

NOTE: MFG validation formats can be cancelled by using this procedure and typing a D for each level.

Validation Maintenance Function (M)--Change an MFG Validation Format

1.	Type	M.	
2.	Teleprinter prints	VALIDATION MAINT INPUT =	
3.	Type	Mnn0.	(number of MFG to be changed)
4.	Teleprinter prints	First MFG slot number	
5.	Type one option	n.	(single validation format number to become level 1)
		S.	(level is not to be changed)
		D.	(no format for this level--delete)
6.	Teleprinter prints	Next MFG slot number	

Return to step 5 until all eight levels of the MFG have been completed.

7.	Teleprinter prints	INPUT =

Change another MFG validation format or type period-only to terminate function.

When period-only is entered:

8.	Teleprinter prints	FUNCTION:
9.	Type	Another function . (terminate Record Format Maintenance)

Validation Maintenance Function (M)--Change an MFG Validation Format Level

1. Type	M.	
2. Teleprinter prints	VALIDATION MAINT INPUT =	
3. Type	Fnnn.	(fetch format level to be changed)
4. Teleprinter prints	1:	
5. Type	n.	(number of field to be changed) Teleprinter positions to field.
6. Type	Field descriptors followed by a period. Teleprinter positions to next sequential field.	

Return to step 5 until all desired changes have been made.

7. Type	T.	(all other fields to remain unchanged)
8. Teleprinter prints	INPUT =	
9. Type	Rnnn.	(record validation format level)
10. Teleprinter prints	The format level number INPUT =	

Change another MFG validation format level or type period-only to terminate function.

When period-only is entered:

11. Teleprinter prints	FUNCTION:	
12. Type	Another function .	(terminate Record Format Maintenance)

Validation Maintenance Function (M)--List an MFG Validation Format

1. Type	M.	
2. Teleprinter prints	VALIDATION MAINT INPUT =	
3. Type	Lnn0.	(list an entire MFG validation format)
	Lnnn.	(list one level of an MFG validation format)
4. After printout, teleprinter prints	INPUT =	

Enter, change, or list another MFG validation format; or type period-only to terminate function.

When period-only entered:

5. Teleprinter prints	FUNCTION:	
6. Type	Another function	
	.	(terminate Record Format Maintenance)

V

DATA VALIDATION (V)

Perform accuracy tests on source data and operator entries.

1.	Follow Standard Select procedure.		
2.	Teleprinter prints	SELECT:	
3.	Type	V.	
4.	Teleprinter prints	DATA VALIDATION RANGE?	
5.	Type one option	n. .	(range batch number) (no range test)
6.	Teleprinter prints	TEST #.	
7.	Type	n.	(validation format number)
8.	Teleprinter prints	ERR PRINT:	
9.	Type one option	1. 2. 3. 4. nnn. . H.	(print batch number, record number, and format level containing error) (print field number containing error and print error type) (print contents of V-formatted fields when an error, subtotal, or document total is printed) (print document totals, subtotals, and contents of crossfoot accumulators in which errors are detected) (combination of above message types) (print all four message types) (print headings and all four message types)
10.	Teleprinter prints	BATCH #.	
11.	Type one option	n. n-n.	(validate a single batch) (validate a range of batches)
12.	After Validation Log printout, teleprinter prints	BATCH #.	

13.	Type one option	G.	(print grand totals -- procedure then returns to step 10)
		n.	(another batch number for validation under same validation format -- return to step 11)
		n-n.	(another batch number range for validation under same validation format -- return to step 11)
		.	(no more batches to be validated under this format)

When period-only is entered.

14.	Teleprinter prints	RANGE?	
15.	Type one option	n.	(request a new batch range number -- return to step 5)
		.	(terminate Data Validation)

NOTE: DO NOT TERMINATE DATA VALIDATION PREMATURELY. As soon as a period is typed after the batch number to be validated, the system begins processing the records in that batch. Do not terminate Data Validation until processing is complete and the BATCH# request prints again.

Y

BATCH NAME MAINTENANCE (Y)

List, enter, and cancel batch names in the Batch Name Directory.

1.	Follow Standard Select procedure.		
2.	Teleprinter prints	SELECT:	
3.	Type	Y.	
4.	Teleprinter prints	BATCH NAME MAINT FUNCTION:	
5.	Type one option	A. B. C. .	(Name Status function) (Name Entry function) (Name Cancel function) (terminate Batch Name Maintenance)

Name Status Function (A)

1.	Type	A.	
2.	Teleprinter prints	NAME STATUS ACCT:	
3.	Type one option	name. name/name. *	(list status of one batch name) (list status of two or more batch names) A maximum of 64 characters is allowed including slashes separating names and the period. (list status of all batch names--skip to step 6)
4.	Teleprinter prints	ACCT:	
5.	Type one option	Another batch name (return to step 3) .	(terminate function)

When period-only is entered:

6.	Teleprinter prints	FUNCTION:	
7.	Type one option	Another function .	(terminate Batch Name Maintenance)

BATCH NAME MAINTENANCE (Y)--continued

Name Entry Function (B)

1. Type	B.	
2. Teleprinter prints	NAME ENTRY	
3. Teleprinter prints	ACCT:	
4. Type	name.	(batch name to be entered) A maximum of 10 characters is allowed.
5. Teleprinter prints	RANGE:	
6. Type one option	n.	(single batch number)
	n-n.	(range of batch numbers)
	S.	(disregard name entered in step 4--return to step 3)
7. Teleprinter prints	WRITE FMT:	
8. Type one option	n.	(Write mode record format)
	S.	(disregard name entered in step 4--return to step 3)
9. Teleprinter prints	VERIFY FMT:	
10. Type one option	n.	(Verify mode record format)
	.	(same format as Write mode)
	S.	(disregard name entered in step 4--return to step 3)
11. Teleprinter prints	ACCT:	
12. Type one option	Another batch name	(return to step 4)
	.	(terminate function)
13. Teleprinter prints	FUNCTION:	
14. Type one option	Another function	
	.	(terminate Batch Name Maintenance)

Name Cancel Function (C)

1. Type	C.	
2. Teleprinter prints	NAME CANCEL	
3. Teleprinter prints	ACCT:	
4. Type one option	name.	(cancel single batch name)
	name/name.	(cancel a string of batch names) A maximum of 64 characters is allowed including slashes separating names and the period.
	*.	(cancel all batch names)

name. (cancel one name)

Teleprinter prints	name CANCELLED ACCT:
Type one option	Another name . (terminate function)

Cancel function continues until a period is typed.

name/name. (cancel a string of names)

Teleprinter prints	name CANCELLED name CANCELLED ACCT:
Type one option	Another string . (terminate function)

Cancel function continues until a period is typed.

***. (cancel all names)**

Teleprinter prints

TYPE*. TO CLEAR ALL ACCTS, OR.:

Type one option	*. (cancel all names)
	. (return to step 3)

5. Teleprinter prints	FUNCTION:	
6. Type one option	Another function	
	.	(terminate Batch Name Maintenance)

EVENT LOG (Z)

Print a record of Keystation events, which occur whenever an operator opens a batch, closes a batch, or enters a record format.

1. Follow Standard Select procedure.
2. Teleprinter prints — SELECT:
3. Type — Z.
4. Teleprinter prints — EVENT LOG
CLRZ. OR PRINT:
5. Type one option

.	(print)
CLRZ.	(clear)
B,C,E,O,R,V, or W.	(status selection)

. (print all events)	CLRZ. (clear all events on disk)
Teleprinter prints line Z1 for an event and line Z2 if batch is auto-balance and has been closed for Write or Verify. Report must be terminated with console button 2 or CTRL key D.	Events are cleared and procedure is automatically terminated.

Selective message printing

Type up to six status characters followed by a period.

B. Auto-balance batch closings in Write or Verify when the control total and the sum of the keyed items do not agree	O. All batch openings
C. All batch closings	R. Batch openings and closings in Read mode
E. All formats entered through the Keystation and stored on disk	V. Batch openings and closings in Verify mode
	W. Batch openings and closings in Write mode

Report must be terminated with console button 2 or CTRL key D.

!

MAINTENANCE REPORT (!)

Print a list of disk and tape activity or a list of Feature Select numbers requested at system load.

1.	Follow Standard Select procedure.	
2.	Teleprinter prints	SELECT:
3.	Type	!.
4.	Teleprinter prints	MAINTENANCE REPORT FUNCTION:
5.	Type one option	A. (print Counts) B. (print Feature Selects)

Counts Function

1.	Type	A.
2.	Teleprinter prints	COUNTS
3.	After printout, teleprinter prints	CLEAR COUNTS: Y. OR .
4.	Type one option	Y. (reset counts to zero) . (leave counts undisturbed)
5.	Teleprinter prints	FUNCTION:
6.	Type one option	B. (print Feature Selects) . (terminate Maintenance Report)

Feature Selects Function

1.	Type	B.
2.	Teleprinter prints	FEATURE SELECTS
3.	After printout, teleprinter prints	FUNCTION:
4.	Type one option	A. (print Counts) . (terminate Maintenance Report)

OCTAL-HEXADECIMAL TAPE DUMP (%)

Print tape records in octal or hexadecimal format.

1.	Follow Loading Tapes for Input procedure.	
2.	Follow Standard Select procedure.	
3.	Teleprinter prints	SELECT:
4.	Type	%.
5.	Teleprinter prints	OCTAL-HEX TAPE DUMP

If the system is equipped with two tape units:

6.	Teleprinter prints	TAPE UNIT: 1. OR 2.
7.	Type one option	1. (tape unit 1) 2. (tape unit 2)

8.	Teleprinter prints	HEX FORMAT? H. OR .
9.	Type one option	H. (hexadecimal format) . (octal format)

If the selected tape is 7-track:

10.	Teleprinter prints	DENSITY: L. OR .
11.	Type one option	L. (low density) . (high density)
12.	Teleprinter prints	PARITY: E. OR .
13.	Type one option	E. (even parity) . (odd parity)

Report must be terminated with console button 2 or CTRL key D.

1

RECORD IDENT (1)

Record and list Format IDs. Format IDs are 1- to 4-character codes that precede tape records during reformatting batch transfer operations.

1. Follow Standard Select procedure.	
2. Teleprinter prints	SELECT:
3. Type	1.
4. Teleprinter prints	RECORD IDENT INPUT =

Begin Format ID Record or List.

Format ID Record

1. Type	Rn.	(number of the first record format to be given an identifier)
2. Teleprinter prints	FRMT ID and repeats the number. (For an MFG request, the number for level 1 is printed.)	
3. Type one option	iiii.	(1-4 characters for main-only format ID)
	iiii/iiii.	(1-4 characters equal in length for main and alternate Format IDs)
	#.	(no ID to be defined)
	".	(no change required)
4. Teleprinter prints	Next record format number	
5. Type one option	Another option (return to step 3)	
	.	(terminate recording)

When period-only is entered:

6. Teleprinter prints	INPUT =

Continue Format ID Record, begin Format ID List, or type period-only to terminate Record Ident procedure.

Format ID List

1. Type one option	Ln.	(list Format ID for one format number)
	Ln-n.	(list Format IDs for range of format numbers)
	Lnn0.	(list Format IDs for one MFG number)
	Lnn0-nn0.	(list Format IDs for range of MFG numbers)
2. After printout, teleprinter prints	INPUT =	

Continue Format ID List, begin Format ID Record, or type period-only to terminate Record Ident procedure.

SYSTEM RECOVER ($)

Inspect batch data storage for damage due to system halt, take corrective action wherever possible, and list the results.

1.	Follow Standard Select procedure with Keystations off line.	
2.	Teleprinter prints	SELECT:
3.	Type	$.
4.	Teleprinter prints	SYSTEM RECOVER FUNCTION:
5.	Type	A. (initiate batch recovery)
6.	Teleprinter prints	BATCH RECOVER
7.	System lists each batch recovered or cancelled.	
8.	After printout, teleprinter prints	FUNCTION:
9.	Type	B. (initiate disk checking)
10.	Teleprinter prints	TAL INTEGRITY
11.	System lists batches on which Batch Recover was performed and then prints	TRACKS RELEASED = (number of tracks released printed)
12.	Teleprinter prints	FUNCTION:
13.	Type	C. (initiate operations logging)
14.	Teleprinter prints	OPERATIONS LOG COUNT = (number of recovery operations and highest level of action taken)

SYSTEM RECOVER ($)--continued

On Systems equipped with Feature No. 150, system lists each operation chronologically and the level of action taken.

15. Teleprinter prints	CLEAR: Y. OR .	
16. Type one option	Y.	(reset count to zero) (leave count undisturbed)
17. Teleprinter prints	FUNCTION:	
18. Type		(terminate System Recover)

=

OAMT PREPROCESSOR (=)

Convert Operator Analyses batches to computer-compatible code for transfer to tape.

1.	Follow Loading Tapes for Output procedure.		
2.	Follow Standard Select procedure.		
3.	Teleprinter prints	SELECT:	
4.	Type	=.	
5.	Teleprinter prints	OAMT PREPROCESSOR BATCH #:	
6.	Type one option	n.	(single OA batch to be processed)
		n-n.	(range of OA batches to be processed)
7.	Teleprinter prints one line for each batch requested in step 6.	n P	(batch processed)
		or	
		n U	(batch not processed)
8.	Teleprinter prints	BATCH #:	
9.	Type one option	n.	(select another option--return to step 6)
			(no more batches to be processed)

NOTE: In this procedure, n must be in the range 4001-4010.

3. TAPE CODE MATRICES

STANDARD TAPE CODE MATRIX

Format Select Char.	Code Name	Answerback on Batch Transfer Log	No. of Tracks
.	IBM EBCDIC	IBM EBCDIC STD	9
.	IBM BCDIC	IBM BCDIC STD	7
B.	Burroughs	BRGHS STD	7
C.	CDC 3000	CDC 3000 STD	7
G.	GE-600 Series	GE-600 STD	7
H.	Honeywell	HNYWL STD	7
J.	GE-200 Series	GE-200 STD	7
R.	RCA 3301	RCA 3301 STD	7
S.	UNIVAC 1108 COBOL	UNIVAC 1108 STD	7

TAPE CODE MATRIX 100

Format Select Char.	Code Name	Answerback on Batch Transfer Log	No. of Tracks
.	IBM EBCDIC	IBM EBCDIC F100	9
.	IBM BCDIC	IBM BCDIC F100	7
B.	Burroughs	BRGHS F100	7
C.	CDC 3000	CDC 3000 F100	7
G.	GE-600 Series	GE-600 F100	7
H.	Honeywell	HNYWL F100	7
J.	GE-200 Series	GE-200 F100	7
R.	RCA 3301	RCA 3301 F100	7
D.	Special EBCDIC	D-EBCDIC F100	9

TAPE CODE MATRIX 101

Format Select Char.	Code Name	Answerback on Batch Transfer Log	No. of Tracks
.	IBM EBCDIC	IBM EBCDIC F101	9
.	IBM BCDIC	IBM BCDIC F101	7
B.	Burroughs	BRGHS F101	7
C.	CDC 3000	CDC 3000 F101	7
G.	GE-600 Series	GE-600 F101	7
H.	Honeywell	HNYWL F101	7
J.	GE-200 Series	GE-200 F101	7
R.	RCA 3301	RCA 3301 F101	7
P.	GE-200 (Special)	GE-200 AP F101	7

TAPE CODE MATRIX 102

Format Select Char.	Code Name	Answerback on Batch Transfer Log	No. of Tracks
A.	EBCDIC	EBCDIC PTA F102	9
B.	EBCDIC	EBCDIC PTB F102	9

4. RECORD FORMAT ENTRY VIA Keystation

ENTER A RECORD FORMAT

1. Depress PROG SELECT.
2. Key an E.
3. Key in characters appearing under headings SKP or DUP, DES, VER, and LENGTH on Record Format Layout for first field. (Key characters with no spaces; alpha and numeric shift not required.)
4. Depress LEFT ZERO/SKIP.
5. Repeat steps 3 and 4 for each field except the last field.
6. Follow step 3 for entering the last field.
7. Depress REL.
8. If part of the format is an alternate format, depress GROUP/ALT. Repeat steps 3 and 4 for each alternate field except the last field.
9. Follow step 3 for entering the last field.
10. Depress REL.
11. Depress PROG SELECT.
12. Key an R and the format number.
13. Depress LEFT ZERO/SKIP.

CORRECT KEYING ERRORS DURING FORMAT ENTRY BEFORE RECORDING

While in the field

- Depress RESET.
- Re-enter field format.
- Depress LEFT ZERO/SKIP or REL if last field.

Field already entered

- Complete field being entered.
- Key number of field to be corrected.
- Re-enter field format.
- Depress LEFT ZERO/SKIP or REL if last field. Keystation positions to field immediately following the corrected field.
- Reposition to desired field by keying field number. When the first character of the field format is entered, the Keystation positions to the desired field.

CHANGE AN EXISTING RECORD FORMAT

1. Depress PROG SELECT.
2. Key an F and the format number.
3. Depress LEFT ZERO/SKIP.
4. Key an E.
5. Key number of field to be changed.
6. Key new field format.
7. Depress LEFT ZERO/SKIP or, if the changed field is the last field in the format, depress REL.
8. Repeat steps 5 through 7 for each field requiring a change.
9. Depress PROG SELECT.
10. Key an R and the format number.
11. Depress LEFT ZERO/SKIP.

DELETE AN EXISTING ALTERNATE FORMAT

1. Depress PROG SELECT.
2. Key an F and the format number.
3. Depress LEFT ZERO/SKIP.
4. Key an E.
5. Depress GROUP/ALT.
6. Key the number 1 and depress LEFT ZERO/SKIP.
7. Repeat step 6 for each of the 16 fields in the alternate format.
8. Depress PROG SELECT.
9. Key an R and the format number entered in step 2.
10. Depress LEFT ZERO/SKIP.

CREATE A NEW FORMAT FROM AN EXISTING FORMAT

1. Depress PROG SELECT.
2. Key an F and the existing format number.
3. Depress LEFT ZERO/SKIP.
4. Key an E.
5. Key number of field to be changed.
6. Key new field format.
7. Depress LEFT ZERO/SKIP or, if the new field is the last field in the format, depress REL.
8. Repeat steps 5 through 7 for each field requiring a change.
9. Depress PROG SELECT.
10. Key an R and the new format number.
11. Depress LEFT ZERO/SKIP.
12. New format is stored and existing format remains unchanged.

ERROR INDICATIONS DURING RECORD FORMAT ENTRY

Error Indication	Error	Signal Occurs	Recovery
Keystation ILLEGAL and KYBD INHIBIT indicators light and error tone sounds ↓	Field length greater than 64 columns	When LEFT ZERO/SKIP or REL depressed after field format entry	Depress RESET and re-enter field format
	Record format number too large	During record (R) and during format number entry (F)	Depress RESET and rekey using correct information ↓
	Format non-existent or never entered	When LEFT ZERO/SKIP depressed after format number entry (F)	
	Illegal field description	During field format entry	
	Illegal field number	During field format entry	
	Format exceeds maximum column length	When LEFT ZERO/SKIP depressed after record (R)	
	Format Library is locked	When LEFT ZERO/SKIP depressed after record (R)	Unlock Format Library (Record Format Maintenance procedure)

5. PROBLEM RECOGNITION AND RECOVERY

COMPUTER CONTROL UNIT

Switches on the computer control unit of a CMC 7 or CMC 9 System are manually set at installation time. One or more of the switches may be accidentally moved, however, causing the system to fail to operate. If that happens, a service call may be eliminated by verifying that each switch is in the position indicated below before trying to restart the system.

Switch	Position
POWER key switch	Must be turned to POWER.
MEM PROT DATA FIELD INST FIELD } switch	Must be in the down position (switch handles toward the front of the drawer).
All other switches on the control unit	Must be in the up position (toward the rear of the drawer) except the DEP switch, which stays down.

SYSTEM HALTS

If power fails or if the system halts for another reason or if a FILE UNSAFE or I/O ERROR is indicated, observe the following instructions to bring the system back up.

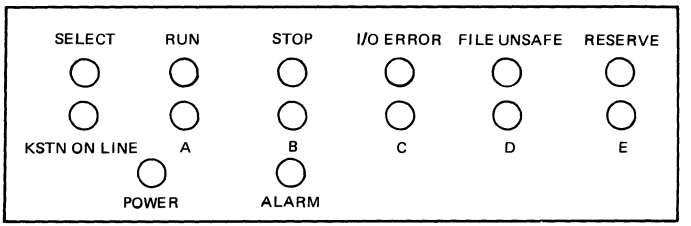
> NOTE: Tape unit operations interrupted by a system halt cannot be recovered. After normal system operations are resumed, begin the tape unit operation at the beginning.

1. Stop all keying at Keystations. DO NOT TOUCH THE SUPERVISORY CONSOLE PANEL AT THIS POINT.
2. Record the status of computer lights on the computer control unit and control panel lights on the supervisory console. (Use a copy of the form on page 5-4 to record lights.)
3. Turn off the disk unit and wait for disk to stop spinning.
4. If it is not already on, turn the supervisory console POWER key to ON.
5. Start the disk unit and wait for the green indicator on the unit to go on.
6. If the FILE UNSAFE indicator goes on, leave the system as it is and call CMC customer service. If there is no file unsafe condition, continue with step 7.
7. Turn the POWER key on the computer control unit to the POWER position if it is not already in that position.
8. Depress the computer STOP switch.
9. Depress the computer LOAD ADDR switch.
10. Depress the computer START switch.
11. Depress the supervisory console STOP button; the teleprinter should print SYSTEM STOPPED.
12. If it did not print, leave the system as it is and call CMC customer service. If it did print, continue with step 13.
13. Depress the supervisory console START button.
14. Depress the supervisory console OPERATE button; Keystations should come on line.
15. If Keystations are not on line, leave the system as it is and call CMC customer service. If Keystations are on line, resume normal operations.

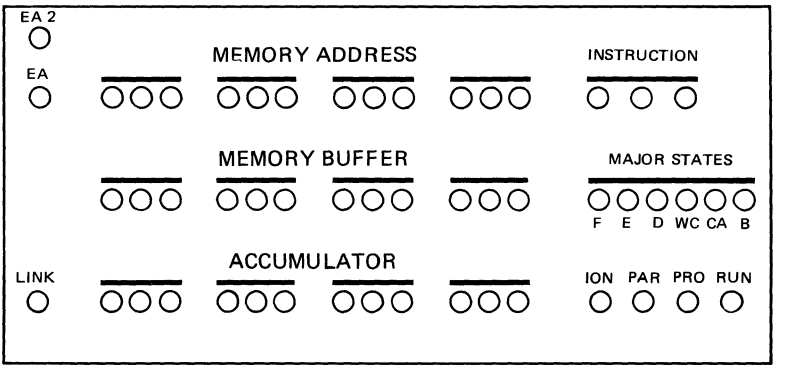
If the system halts, use the diagrams on page 5-4 to record the status of supervisory console and computer control unit lights. (Two computer diagrams are shown; select the proper diagram.)

If the system cannot be restarted using the instructions on page 5-2, call a CMC customer service representative and tell him which lights were on at the time of the halt.

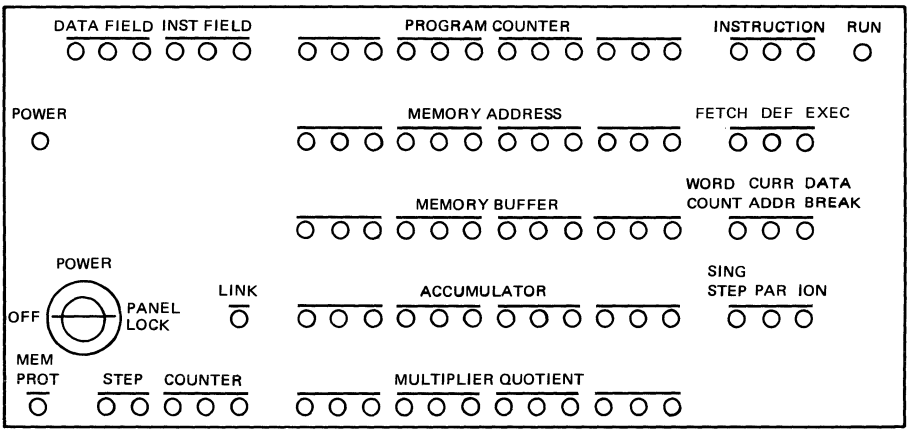
CMC customer service phone number_____



SUPERVISORY CONSOLE PANEL LIGHTS



COMPUTER CONTROL UNIT PANEL LIGHTS I



COMPUTER CONTROL UNIT PANEL LIGHTS II

SELECT LIGHT WILL NOT GO ON

1. Make certain that the supervisory console POWER key is turned to ON (not to LOCK).

2. Make certain that the supervisory console green POWER light is on. If it is not on, call CMC customer service.

3. Depress the supervisory console START button.

4. If the SELECT light still remains off, continue with step 5.

5. Open the computer drawer and depress the computer STOP switch. Check computer switch settings on the computer control unit to make sure they are correct.

6. Depress the supervisory console START button.

7. If the SELECT light remains off, call CMC customer service.

RUN LIGHT WILL NOT GO ON

1. Check the disk unit.

   - If the green light is on, call CMC customer service.

   - If the green light is off, do the following:

2. Turn the supervisory console POWER key OFF, then ON.

3. Turn the disk unit on.

4. When the disk unit green indicator goes on, depress the supervisory console START button.

5. When the SELECT light goes on, resume normal operations.

DISK 75% FULL

When 75% of the available batch data storage is filled, the system gives the following error indications:

- Supervisory console RESERVE and ALARM lights go on.
- Console audible alarm sounds.

1. Turn the volume control knob counterclockwise to silence the alarm; the RESERVE and ALARM lights remain on.
2. Keystation operation may continue, but only 25% of the disk remains available for entry of new data in the Write mode.
3. As soon as convenient, release those batches that have already been transferred to tape (Batch Release procedure). A batch that has been output to tape counts toward the 75%-alarm figure until its batch number has been released.

DISK FULL

When 99.9% of available batch data storage is filled, the system halts with the following error indications:

- Supervisory console STOP, RESERVE, and ALARM lights go on.
- Console audible alarm sounds.
- Teleprinter prints DISK FULL, RELEASE, SYSTEM STOPPED.

1. Turn the volume control knob counterclockwise to silence the alarm.
2. Release those batches that have already been transferred to tape (Batch Release procedure).
3. When batches are released and the Keystations are brought back on line, operators can resume keying from the point where they were halted by the disk-full condition.

Error Message	Definition	Generated By	Comments
AT	Tape unit halt	Batch Transfer	Tape rewinds.
		System Reload	Tape does not rewind.
		System Save	Tape does not rewind.
		Tape Entry	P and T Function: Printing terminates.
			W Function: If mid-batch, batch closed at end of last record transferred to disk before AT error.
BLOCK SIZE=nnn	Tape block length does not agree with record format size, or it is not the same as previously entered blocks.	Tape Entry	W Function: Procedure returns to FUNCTION: request. If mid-batch, batch closed at end of last block conforming to size of previous blocks.
BT	Irrecoverable parity or LRCC error.	Batch Transfer	Tape rewinds.
		System Reload	Tape rewinds.
		System Save	Tape rewinds.
		Tape Entry	P, T, and W Function: Tape positioned at end of block containing error.
			W Function: If mid-batch, batch closed at end of last record transferred to disk before BT error. If entry is resumed, the first block entered will be the one following block in which BT error occurred.

Error Message	Definition	Generated by	Comments
CLEAR ERROR	Error detected during internal processing.	Data Clear	Data Clear must be re-started.
COLUMN CHECK	Requested format has a different column length than format built into previous slot.	Multiple Format Maintenance	Request is repeated.
	Verify format specified does not contain the same number of columns as the Write format.	Batch Name Maintenance, Function B	Request is repeated.
DISK ERROR AT HD-TK xxxx	Irrecoverable disk error.	System Reload	System halts. Replace disk pack or call CMC customer service.
		System Save	System ignores error and continues.
DISK FULL-RELEASE	Batch data storage filled.	System	Release batches that have been transferred to tape. If Tape Entry procedure was in process, print Batch Status Report to determine condition of batch following last batch printed on Tape Entry Log.
EOT SENSED	End of tape reflective marker reached.	Octal-Hexadecimal Tape Dump	Tape does not rewind.
ERROR	Illegal format description or field number.	Record Format Maintenance, Function M	Request is repeated.

Error Message	Definition	Generated by	Comments
ET	End of tape reflective marker reached.	Batch Transfer Tape Entry	Tape rewinds. Tape does not rewind.
EVENT LOG OVERFLOW	Event Log queue is filled.	Event Log	New messages are replacing old messages in queue.
ILLEGAL-AUTO-BALANCE	Format requested would give the MFG more than two auto-balance fields or auto-balance field was larger than 14 positions. Auto-balance field in record format specified does not align with auto-balance field in Write mode format.	Multiple Format Maintenance Batch Name Maintenance, Function B	Request is repeated. WRITE FMT: request is repeated.
ILLEGAL-IN-USE	The specified MFG is currently in use at a Keystation.	Multiple Format Maintenance	Procedure cannot be performed.
ILLEGAL RFS	RFS not in library or is of inconsistent length.	Batch Transfer Batch List	Check RFS number and re-enter it.
NO WRITE RING	Write ring has not been inserted in tape reel.	Procedures requiring output tape	Insert write ring.
LIBRARY FULL	The Batch Name Directory contains the maximum 600 account codes.	Batch Name Maintenance	Request is repeated.
NAME BATCH	The format cannot be modified because the batch is a batch name batch.	Batch Format Alter	Request is repeated.

Error Message	Definition	Generated by	Comments
NOT AVAILABLE	System not equipped with necessary optional feature.	System	Requested procedure or report cannot be loaded.
	Syntax error on Select entry.	System	Repeat Select character.
	Requested format number is legal, but no record format currently recorded in library under that number.	Multiple Format Maintenance	Request is repeated.
		Batch Name Maintenance	Request is repeated.
		Record Format Maintenance, Function M	Request is repeated.
NOT SYSTEM SAVE TAPE	System Reload attempted with wrong tape.	System Reload	Load System Save tape and restart load operation.
! RD ER	Read error	Octal-Hexadecimal Tape Dump	Check parity, density, and tape condition and restart Standard Select procedure.
RANGE TABLE OVERFLOW	Range batch exceeds 960 character limit.	Data Validation	Request is repeated.
RECORD FORMAT NOT IN LIBRARY	Record written under an MFG level is no longer in the format library.	Batch Transfer	Tape rewinds; AT message printed. Check the MFG and re-enter it.
		Batch List	Batch is logged as not listed; an M prints in the status column; request is repeated.
SE 0008	Disk error during attempt to fetch a record identifier.	Batch Transfer	Tape rewinds. Re-record record identifier.

Error Message	Definition	Generated by	Comments
SE 0009	Disk error during attempt to fetch an RFS.	Batch Transfer	Tape rewinds. Re-record RFS.
		Batch List	Request is repeated.
SE 0010	Disk error during attempt to fetch a data record.	Batch Transfer	Tape mark is written. Tape then rewinds. Blocks in file must be manually calculated.
		Batch List	Request is repeated.
		System Recover	Batch is closed at previous record.
SE 0011	Batch number in record on disk does not agree with batch number currently being written.	Batch Transfer	Tape mark is written. Tape then rewinds. Blocks in file must be manually calculated.
		Batch List	Request is repeated.
		System Recover	Batch is closed at previous record.
SE 0012	Batch File Directory error	System Recover	If address and batch header valid, write bit is set on; otherwise, batch cancelled.
SE 0013	TAL Error	System Recover	Batch truncated at last record read.
SE 0014	Illegal Record ID	System Recover	Batch is closed at previous record.
SE 0015	Insert error	System Recover	Illegal Record Insert ID records are deleted.
SE 0016	Insert(s) Deleted.	System Recover	Entire insert and control record lost and should be re-entered.

Error Message	Definition	Generated by	Comments
SE 0017	Records Deleted.	System Recover	If batch truncated rather than single track closed, final status will be WT, PT, or VT.
SE 0018	Batch Disconnected	System Recover	Batch Recover initiated on batch.
SE 0019	MFG Batch Balance Error	System Recover	Batch closed with no balance field processing.
ST	Start of tape reflective marker reached.	Tape Entry	Tape positioned at load point.
SYNTAX ERROR	Illegal operation code appeared in the batch string.	Batch List	Request is repeated.
TAPE ERROR AT HD-TK xxxx	Irrecoverable tape error.	System Reload System Save	System ignores error and continues. System halts with no tape rewind. Replace output tape.
TAPE NOT READY	Tape not loaded correctly or tape unit ON-LINE indicator not on.	Procedures requiring input or output tape	SELECT request is repeated.
TM	Tape mark encountered.	Tape Entry	P Function: Printing terminates and tape is positioned at the end of the tape mark.

Error Message	Definition	Generated by	Comments
TM--continued			T Function: In forward direction, tape halts in the interblock gap following the tape mark. In reverse direction, tape halts in the interblock gap preceding the tape mark. W Function: If letter C not specified with batch entry range, entry terminates. Batch is closed at the last record before the tape mark. Tape is positioned in the inter-block gap following the tape mark.
???	Illegal operation code appeared in the batch string.	Batch Transfer	Request is repeated.

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